MASTERFLEX®

I/P® Easy-Load® Pump Heads Guide

MFLX77601-XX
MFLX77602-XX





MASTERFLEX®

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Safety Precautions

***Warning**: Turn drive off before removing or installing tubing; fingers or loose clothing can be caught in rollers.*

***Warning**: Stop drive operation when changing tubing or its position in the rotor mechanism (the rotor is partially exposed when the loading lever is in its open position).*

WARNING: PRODUCTS USE LIMITATIONS

These products are not designed for, nor intended for use in patients-connected applications; including but not limited to medical and dental use, and have not been submitted for FDA approval.

TIP: Use only Masterflex precision tubing with Masterflex pumps to ensure optimum performance. Using other tubing may void applicable warranties.

***Caution**: When using hazardous chemicals and biological agents, take all suitable protective measures such as wearing protective glasses and gloves which are resistant to the substances used. Follow local and national regulation for safe operation and maintenance of the system.*

Explanation of Symbols

Caution: Risk of Danger
Consult this guide for the nature of hazards and the corrective actions to be taken.



Caution: Risk of Crushing
Keep fingers away from rotor while the pump is in operation. Stop pump operation before loading or unloading tubing.

PUMP FOR LIQUIDS
ORIGINAL INSTRUCTIONS

Introduction and General Description

Reliable Masterflex I/P Easy-Load Pump Heads will smoothly and effectively integrate into your process. When combined with a Masterflex I/P drives, I/P pump heads are designed to provide a simple easy-to-use peristaltic pump. I/Pump heads can accept three different tubing sizes (I/P 26, 73, 82) for a wide range of flow rates. The unique over-center cam design and automatic tubing retention allows quick tubing changes and greatly reduced maintenance time.

Each pump is supplied with a 20 in. (51 cm) length of tubing, one mounting hardware package, and this guide.

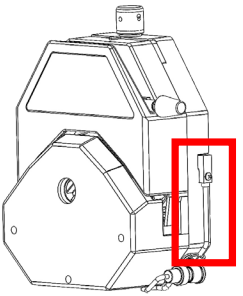
Drive Compatibility and Setup

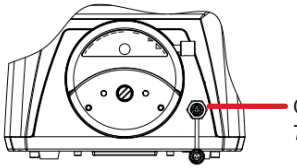
I/P Easy-Load Pump Heads (see Figure 1 below) are available in two drive shaft lengths (short or long) depending upon the drive chosen. Note that the short shaft version has a standard tang interface. Use the supplied five screws to mount either short or long pump heads. Note a flat-bladed screwdriver (not supplied) is required to complete installation.

NOTE: Raise occlusion bed to expose mounting holes for two top-inside screws.

Open-Head Sensor Pump Model

Pump head drive model MFLX77602-18 is equipped with an open-head sensor (OHS). When mounted on an open-head sensor drive, the sensor will automatically shut down the drive if the pump head is opened (OHS highlighted at right).





Open head sensor for I/P drive models 77602-30 and 77602-80

TUBE LOADING

1. Verify the pump drive is turned off.
2. Move the loading lever to the left to open the pump (see Figure 1 right).
3. Load the correct tubing.
4. Move the loading lever to the right to close (see Figure 2 next page).

Continued on next page



Figure 1 Open and Load

Tube Loading (Cont.)



Figure 2 Close Pump

***Warning*: Stop the drive before changing tubing or its position on the rotor; the rotor is partially exposed when the loading lever is in its open position.**

TIP: For optimum tubing life, keep tubing straight when entering or exiting the pump.

Adjusting Occlusion

TIP: For optimum performance turn the dial to "1" after loading. Start the drive and adjust the dial until pump primes and fluid begins to flow. (Occlusion usually does not need to be readjusted when changing tubing.)

Adjust settings with the dial on the pump head top (see Figure 3 below)

- Select **3** on the dial for nominal performance
- Select **4** or **5** for increased pressure/vacuum but with reduced tubing life
- Select **1** or **2** for longer life, with less pressure and vacuum

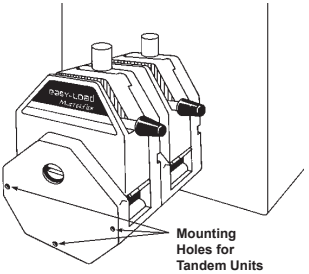
NOTE: After operation for some time, the retainer teeth may scratch or mark the tubing surface, this is normal and will not cause leaks or reduce tubing life.



Figure 3 Adjust Occlusion

Multi-Channel Mounting

I/P Easy-Load Pump Heads can be mounted in tandem, depending upon drive torque capabilities. A standard short-shaft pump head is required for the add-on pump head, along with special mounting hardware. See Mounting Hardware below for details.



***Caution**: Do not overtighten mounting screws.*

NOTE: Tubing on the inside of the I/P Easy-Load Pump Head can be changed without removing the outside pump.

Maintenance and Cleaning

No lubrication is required for the pump head. Use a mild detergent solution to clean the pump head. Inspect the tang boot after 1,000 hours of operation and replace if necessary.

Replacement Parts and Accessories

Main Body Assembly Occlusion Bed with Rear Bearings			
Pump Head No.	**PPS Order No.**	**Pump Head No.**	**PPS Order No.**
MFLX77602-00, -02	**MFLX77602-07**	—	**—**
MFLX77602-10, -12	**MFLX77602-17**	MFLX77601-60, 62	**MFLX77601-67**

Rotor/Bearing Support Assembly			
Pump Head No.	**Short Shaft Order No.**	**Pump Head No.**	**Long Shaft Order No.**
MFLX77602-00	**MFLX77602-08**	MFLX77602-02	**MFLX77602-28**
MFLX77602-10	**MFLX77602-18**	MFLX77602-12	**MFLX77602-38**
MFLX77601-60	**MFLX77601-68**	MFLX77601-62	**MFLX77601-88**
MFLX77602-18	**—**	**—**	**—**

Mounting Hardware	
Heads to be Mounted	**Stainless Steel Ordering No.**
1	**MFLX77601-95**
2	**MFLX77601-96**

Tubing Retainer Kit MFLX77602-06
Two retainer assemblies, backplate, screws.

Tang Boot Order Nos.
MFLX77600-02 (pkg. of 2)
MFLX77600-03 (pkg. of 10)

Specifications

Pump Head No.	Housing Material	Shaft Length	Tubing
MFLX77602-00	PPS/CRS	Short	I/P 26, 73, 82
MFLX77602-02	PPS/CRS	Long	I/P 26, 73, 82
MFLX77602-10	PPS/SS	Short	I/P 26, 73, 82
MFLX77602-12	PPS/SS	Long	I/P 26, 73, 82
MFLX77602-30	PPS/SS	Short	I/P 26, 73, 82
MFLX77601-60	PPS/SS	Short	I/P 26, 73, 82
MFLX77601-62	PPS/SS	Long	I/P 26, 73, 82

Component	I/P 26, 73	I/P 82
Maximum Discharge Pressure (PSI)	40 (2.7)*	20 (1.4)*
Maximum Vacuum	660 mm (26) in Hg*	610 mm (24) in Hg
Maximum Suction Life	8.8 m (29 ft.) H_20*	8.2 m (27 ft.) H_20*
Number of Rollers	3	
Occlusion	Adjustable by dial on pump head top	
Maximum Pump Speed	650 RPM	
Nominal Torque Load Starting	Up to 13 kg-cm (181 oz-in)	
Nominal Torque Load Running	Up to 9 kg-cm (125 oz-in)	
Housing Material	Polyphenylene Sulfide (PPS), Polyester, Aluminum, Nylon	
Roller/Rotor Material	Cold-Rolled Steel (CRS) or Stainless Steel (SS)	
Operating Temperature‡	0° to 40°C (32° to 104°F)	
Noise Level	<70 dBA 1 Meter	
Compliance (for CE mark)	EN809 (EU Machinery Directive)	

Typical Flow, Pressure, and Vacuum Data

I/P Tubing	Flow Rate		Max Discharge Pressure*	Vacuum* @ 650 RPM in (min) Hg	Suction Lift* @ 650 RPM ft. (m) H_20
	@ 1 RPM mL/Rev	@ 650 RPM mL/min	PSIG (bar)		
I/P 26	6.2	4	40 (2.7)	610 (24)	25 (7.6)
I/P 73	12.3	8	40 (2.7)	610 (24)	25 (7.6)
I/P 82	20.0	13	20 (1.4)	510 (20)	23 (7.0)

* Testing with NORPRENE®, PHARMED® BPT, and TYGON® tubing; values will be less with silicone and C-FLEX®.

‡ Use in this temperature range for continuous-duty operation with no decrease in performance or product life. Pump heads will work outside this temperature range with some possible reduction in performance and pbroduct life.

Warranty

Use only MASTERFLEX precision tubing with MASTERFLEX pumps to ensure optimum performance. Use of other tubing may void applicable warranties.

This product is warranted against defects in material or workmanship, and at the option of the manufacturer or distributor, any defective product will be repaired or replaced at no charge, or the purchase price will be refunded to the purchaser, provided that: (a) the warranty claim is made in writing within the period of time specified on the warranty card, (b) proof of purchase by bill of sale or receipted invoice is submitted concurrently with the claim and shows that the product is within the applicable warranty period, and (c) the purchaser complies with procedures for returns set forth in the general terms and conditions contained in the manufacturer's or distributor's most recent catalog.

THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER, AND THE MANUFACTURER AND DISTRIBUTOR DISCLAIM ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE MANUFACTURER OR DISTRIBUTOR IS AUTHORIZED TO BIND THE MANUFACTURER OR DISTRIBUTOR TO ANY OTHER WARRANTY. IN NO EVENT SHALL THE MANUFACTURER OR DISTRIBUTOR BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES.

The warranty period for this product is two (2) years from date of purchase.

THIS WARRANTY SHALL NOT APPLY TO: (A) DEFECTS OR DAMAGE RESULTING FROM: (I) MISUSE OF THE PRODUCT, (II) USE OF THE PRODUCT IN OTHER THAN ITS NORMAL AND CUSTOMARY MANNER, (III) ACCIDENT OR NEGLECT, (IV) IMPROPER TESTING, OPERATION, MAINTENANCE, SERVICE, OR REPAIR, OR INSTALLATION, OR STORAGE, (V) UNAUTHORIZED ALTERATION OR MODIFICATION, OR (VI) POST-EXPIRATION DATED MATERIALS.

Product Return

To limit charges and delays, contact the seller or manufacturer for authorization and shipping instructions before returning the pump head, either within or outside of the warranty period. When returning the product, please state the reason for the return. For your protection, pack the pump head carefully and insure it against possible damage or loss. Any damages resulting from improper packaging are your responsibility.

Technical Assistance

If you have any questions about the use of this product, contact the manufacturer or authorized seller.

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